

10,000 gardens in Africa project

Planning the garden



The garden is a system in continual evolution which responds to stress brought about by:

- the external environment, seasons, rains, temperature and wind;
- the farmers who run it and decide to sow, harvest, hoe and irrigate;
- the microorganisms in the soil, plants in the vicinity and animals on the ground, insects and fungal spores in the air.

The IDEAL garden must first of all be planned on paper.

The first questions we have to ask ourselves are:

- How much **space** does the school/community have?
- Is there the possibility of using little or a lot of **water**?
- How much **time** can we dedicate to looking after the plants?
- Is the garden intended for our own consumption only or do we also want to sell and/or transform the products we produce?



Make a drawing of the plot on a sheet of squared paper dividing it into as many parts as there are species that interest us. If there are trees and bushes - that are to remain on our plot year after year - mark them on the map.

Take into account yield scaling and what is needed most for daily consumption. Apart from drawing the garden, it would also be useful to closely examine the succession of sowing or transplantations. Based on the information gathered while making preliminary observations, we can determine the shape and form we want the garden to have, and the amount of surface area to be dedicated to the different crops (vegetables, fruits, flowers, sweet herbs, etc.), to other useful areas (passages between the different flower beds, storing place for tools, etc.), to the seedbed, and to the composter.

If the garden already exists, it would be useful to repeat the same procedure in any case so as to understand whether something needs to be added or changed.

Type of products



The place where the garden will be realized will possess native flora (grasses, shrubs and trees, intercropping that has developed over time) that can tell us a lot about the climate and from which we can draw the necessary considerations to understand what we can cultivate and what, as of now, we can decide not to cultivate.

When choosing the species and varieties to grow, we should first of all consider the climatic conditions. Cli-



matic variables (e.g. high temperatures, low solar radiation) greatly limit the plant's development (the yield of tomato during the hot and rainy season, for instance, is half that of the cooler season). The cultivation of tomato, cucumber and lettuce can also take place in the shelter of other arboreal plants which, with their umbrella-shaped leaves, shield them from the beating of heavy rains. During the hot and humid season, high temperature and humidity are factors that favor the development of pathogens such as fungi (anthracnose

caused by *Collectotrichum spp.*, fruit rots, downy mildew, southern rust caused by *Sclerotium rolfsii*) and bacteria (bacterial wilt caused by *Ralstonia solanacearum* due to soft rot caused by *Erwinia spp.*).

Vegetables normally cultivated can be included between 60 and 100 species.

- **“short-cycle” leafy indigenous vegetables (less than one month):** amaranth, petsay, sorrel.
- **“long-cycle” leafy indigenous vegetables (one – two months):** African eggplant, cabbage, chives, spinach, malabar spinach.
- **“short cycle” leafy vegetables of temperate origin (less than one month):** lettuce and parsley
- **“long-cycle” leafy vegetables of temperate origin (more than two months):** tomato, carrot, purple eggplant, cucumber.

We need to take into account a series of elements that are the heritage of local communities.

Growth period: it is necessary to know, roughly, the number of days that elapse between the date of sowing, budding and maturation.



Plant behavior: it is important to know the type of plant growth (which can be creeping, erect, etc.) in order to establish the practice and management of crop production.

The continuity and the spatial and temporal diversity of the crops: we must not sow everything at the same time, but distribute the crops in different periods depending on the vegetative cycles and requirements (e.g. water) to enable a scaling process of fruit and vegetable ripening, thus ensuring a constant production of food and as long a green cover as possible, to protect the soil.

Optimal use of space and resources: a combination of plants with different growth habits and different root systems (roots that explore different levels of soil) allow a better utilization of nutrients, water and sunlight. Intercropping establishes the most efficient use of light, water and nutrients by plants that have different heights and different behaviors (annual-cycle vegetables, long-term tree

species, tubers). Furthermore, diversified crop systems increase the opportunities of growing natural enemies, thereby improving the biological control of pests.



Soil fertility conservation: it is important to maintain the cycle of nutrients, energy, water and waste (closed-loop system) in the garden, hence the necessity to enrich the soil with yield nutrients (such as forest humus and compost) and by means of crop rotation, intercropping and green manuring. When drawing the garden, therefore, a space must be included for a compost bin, unless the garden is located at the edge of the forest, in which case you can recover humus without having to compost.

Water conservation: it is important to select crops and crop systems according to the quantity and distribution of rainfalls. In areas where humidity is low, it is better to opt for drought-resistant crops (such as cajanus, sweet potatoes, cassava, millet and sorghum), and to include techniques of soil covering and management (e.g. mulching) in order to avoid the evaporation and run-off of water. It is often useful to have a basin (or tank) next to the garden for the collection of rainwater.

Crop protection: it is necessary to consider developing different strategies to combat unwanted organisms. Traditional varieties and intercropping protect against catastrophic attacks of pathogens (fungi) and pests (insects). Moreover, crop practices such as mulching, the modification of sowing times, the presence of repellent plants (such as chili pepper and garlic), and the use of preparations (neem oil, macerated nettles) can minimize the interference of pests. It is important, therefore, to choose plants in this perspective too.

After having decided which plants to grow, it may be useful to fill in some simple “product data sheets” together with the people participating in the training sessions.

Example of product data sheet

Species: GARLIC

Variety:

Average crop duration: 20 weeks (from sowing to harvest)

General characteristics and specific care: this plant needs little heat and little water; it prefers deep soil, but not too rich in nutrients. If the soil is compact or crusty, it has to be worked.

Sowing and harvest: for a flowerbed 120 cm wide, plant six rows. The cloves of garlic are to be placed at a depth of approximately 15 cm. The ideal sowing periods are or Harvest is carried out in At the end of the harvest period, entwine the plants harvested and store them in a dry place.

Utilization: how to eat, transform, sell it, etc.

Design your garden and write down the various products that intend to grow!

This image shows a full page of blank graph paper. The grid consists of thin, light gray horizontal and vertical lines that intersect to form small squares across the entire surface. There are no margins, text, or other markings on the paper.